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ABSTRACT

This module on the skeletal system is the fourth of ten (CE 028 308-318) in the barbering/cosmetology course of a bilingual skill training program. (A Vocabulary Development Workbook for modules 6-10 is available as CE 028 313.) The course is designed to furnish theoretical and laboratory experience. Module objectives are for students to develop trade-related Spanish/English vocabulary, to name the nine systems found in the human body, to identify the three basic parts of the skeletal system and the function of each, to identify the types and structure of a bone, and to identify the eight bones of the cranium and the fourteen bones of the face. Contents include list of module objectives; pretest; five sections on (1) systems, (2) skeletal system, (3) types and structure of a bone, (4) eight bones of the cranium, and (5) fourteen bones of the face; posttest; and English/Spanish vocabulary list. Each section is organized into this format: instructions, vocabulary, and concepts (statements or questions to direct reading) presented in English and Spanish; readings; and worksheets to evaluate comprehension of the trade-related reading material. (Readings in modules 1-5 are in both English and Spanish.) Worksheets also cover these areas: vocabulary, definitions, word attack skills, writing skills, spelling, and application of terminology to the trade area. (YLB)

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ED199500

BILINGUAL SKILLS TRAINING PROGRAM
BARBERING/COSMETOLOGY

MODULE 4.0

S K E L E T A L S Y S T E M

CE 028 311

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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I. PURPOSE

This module is to:

1. Assist students in developing trade-related vocabulary.

2. Facilitate the learning of the trade through reading information sheets, vocabulary lists and language exercises.

3. Provide student with individual check lists for individual progress.

II. INRODUCTION

Cosmetology and Barbering require the student to follow a defined theoretical course of study as well as acquire practical knowledge in the respective trade. Due to the limited amount of time allowed for theory and the difficulty of the technical vocabulary found in the reading, the student often needs additional help in this area. Students in above trades are required to pass the State Board Examination before practicing their trade. To succeed in passing this exam and to be better equipped for the job, the student must be able to function in the oral and written communication skills and utilize the technical vocabulary of their trade. This module is structured to provide for individual needs of the students so that they may progress at their pace in the academic or theoretical area. A simple coding system is utilized to facilitate the student use.

III. ACTIVITIES

Because each module is geared for individualized instruction it is important to assess the individual needs of the students. A pre-test is administered to students before they begin working with a module. Instructions are given orally in Spanish and English.

Instructions, vocabulary and concepts in each module are written in Spanish and English so as to explain the purpose of each reading. There is a reading for each objective presented in the module. The reading is referred to as an information sheet. This sheet is designed to provide the student with reading material incorporating the technical vocabulary that is needed in the trade skill area. The gradation of reading is from simple to more complex. Thus the information sheet facilitates the learning process in the theoretical course of study. Each information sheet is followed by a series of diversified work sheets directly checking for comprehension of the reading material. Other items covered in these work sheets are: vocabulary, definitions, word attack skills, writing skills, spelling and application of terminology to the trade area.

Oral language development exercises directed by the instructor constantly reinforce the concepts presented. Students have an opportunity to utilize and develop the technical vocabulary needed in their trade by interaction among themselves, the instructor and tutors. The Bilingual dimension is specifically directed at concept and vocabulary development.

The students are directed to utilize supplementary materials available through the Learning Resource Center to reinforce each area as they progress in the module. Audio visuals are utilized to introduce subject matter. They are also accessible to the students to be used on an individual basis.

IV. EVALUATION

The students are evaluated by the instructors as to their progress in language and in the course content area through the pre-test, work sheets, check list and a post test. Individual student profiles and folders are kept on record to check on student progress at all times. Oral development skills are assessed individually.

Students go through the following process in utilizing the modules:

Pre-test (Students scoring 85% or below must complete the entire module. Those scoring above 85% may go on to the next module).

Reading of instruction sheet
Information sheet
Series of written and oral exercises
Oral evaluation
Post test (oral and written)
Recycling, if needed (Students scoring 85% or below on post-test are recycled through module in designated weak areas. See coding system.)

MODULE OUTLINE

4.0 Systems

4.1 Systems

4.2 Skeletal System

4.3 Types and the Structure of a Bone

4.4 Eight Bones of the Cranium

4.5 The Fourteen Bones of the Face

STUDENT OBJECTIVES

After completing this module the student will be able to:

4.1 Name the nine systems that are found in the human body.

4.1.1 Describe orally what tissues are composed of and how they are formed.

4.1.2 Describe orally what organs are composed of and how they are formed.

4.1.3 Describe orally how the nine systems are formed.

4.2 Identify the three basic parts forming the skeletal system and the function of each.

4.3 Identify on a diagram the main parts of a bone.

4.3.1 Describe the function of each essential part of the bone.

4.3.2 Name the four types of bones found in the human body.

4.4 Identify on a diagram the eight bones composing the cranium.

4.5 Name the fourteen bones of the face.

PRETEST FOR SYSTEMS

1. How many systems are there in the human body?

2. What are organs formed of?

3. What does the skeletal system consist of?

4. How many bones are there in the human body?

5. What are the four basic types of bones?

6. What is the function of bones?

7. What is meant by osteology?

8. What are the eight bones that make up the cranium?

9. Which are the bones of the face that are affected by the massage?

10. What are the three bones that make up part of your nose?

090 7

Instructions:

In this selection you will read about the different types of systems found in your body. You are provided with a list of words that are important in this article. Read each word carefully before you read the article. If you have any difficulty with the reading, please consult with the instructor or tutor.

Instrucciones:

En ésta selección vas a leer de los diferentes tipos de sistemas que se hallan en el cuerpo humano. Tienes una lista de palabras que son importantes en este artículo. Lee cada palabra cuidadosamente antes de seguir con el artículo. Si tienes dificultad con la lectura, favor de consultar con el profesor o tutor.

Vocabulary	Vocabulario
cell	célula
tissues	tejidos
organs	órganos
systems	sistemas
skeletal system	sistema esquelético
muscular system	sistema muscular
nervous system	sistema nervioso
circulatory system	sistema circulatorio
digestive system	sistema digestivo
excretory system	sistema excretorio
endocrine system	sistema endocrino
respiratory system	sistema respiratorio
reproductive system	sistema reproductivo

Keep the following questions in mind as you read this article.
Recuerda las siguientes preguntas al leer este artículo.

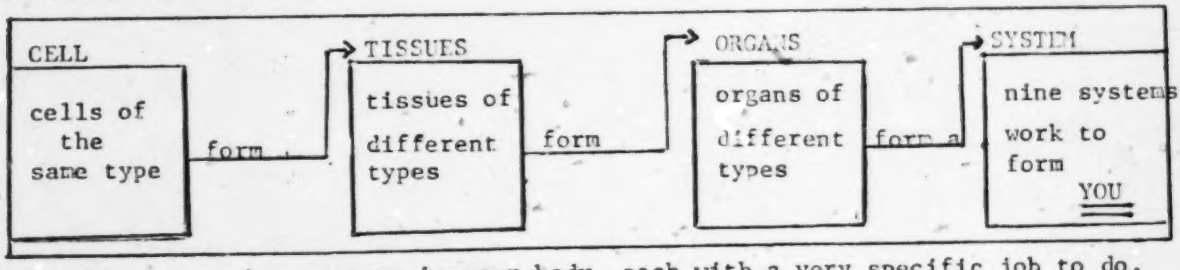
1. What are organs formed of?
   ¿De qué se forman los órganos?

2. What are special groups of organs working together called?
   ¿Cómo se llaman los grupos especiales de órganos que trabajan juntos?

3. How many systems are there in the human body?
   ¿Cuántos sistemas hay en el cuerpo humano?

1. From what you have read before, you know that a cell is the basic unit of life or living matter. You also know that cells of the same type group together to form tissues.

2. Different types of tissues group together to form organs. We have been looking at how the body is constructed, knowing now that a cell is the first building block. Can you guess what the next building block of your body is after organs? Different types of organs are grouped together to do special jobs for your body. These special groups of organs working together are called systems. If we were to draw a picture of all the building blocks that we have read about it would look like this:

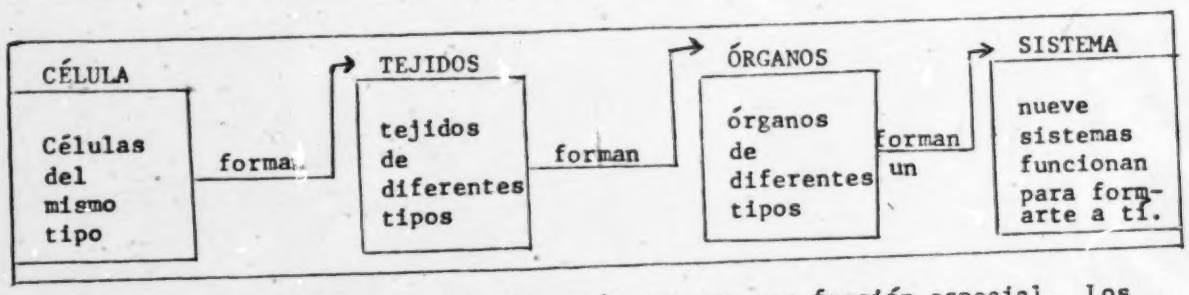


3. There are nine systems in your body, each with a very specific job to do. They are the skeletal system, muscular system, nervous system, circulatory system, digestive system, excretory system, endocrine system, respiratory system and reproductive system. You will be reading about all of these in future readings. In this module we will deal only with the skeletal system.

Sistemas

1. Ya sabes que la célula es la unidad básica de seres vivientes. También sabes que células del mismo tipo se agrupan para formar tejidos.

2. Diferentes tipos de tejidos se agrupan para formar órganos. Ya hemos visto la construcción del cuerpo humano y sabemos que la célula es la unidad básica del cuerpo. ¿Sabes lo que sigue después de los órganos? Diferentes tipos de órganos se agrupan para realizar las funcciones especiales en tu cuerpo. Estos grupos especiales de órganos que funcionan juntos se llaman sistemas. Mira el dibujo que sigue para que comprendas cómo se agrupan las unidades de estructuras que forman el cuerpo humano.



3. Hay nueve sistemas en tu cuerpo, cada uno con una función especial. Los sistemas son: el esquelético, el muscular, el nervioso, el circulatorio, el digestivo, el excretorio, el endocrino, el respiratorio, y el reproductivo. En otras lecturas leerás de todos los sistemas. En este módulo hablamos solamente del sistema esquelético.

Find The Answers

1. There are _____systems in your body.

   A. six
   B. two
   C. several
   D. nine

2. The word in paragraph 3 which means "concerned with reproduction" is _____

   _____.

3. The words "each with a very specific job to do" in paragraph 3 refer to _____

   _____.

4. The story does not say so, but it makes you think that

   A. Organs are the first building blocks of your body.
   B. Systems are rade up of cells.
   C. Systems in your body all do the same job.

5. Different types of cells group together to form tissues.

   Yes No Does not say

6. On the whole this story is about

   A. The skeletal system
   B. The different systems in your body.
   C. The respiratory system

7. What is the first building block of your body?
   (Check the story again)

   A. Organs B. Cell C. Tissues

In each pair of words below circle the word that would come first in a dictionary.

1. system
   skeletal

2. reproductive
   respiratory

3. excretory
   endocrine

4. nervous
   muscular

5. cell
   construct

6. organ
   organic

7. circulatory
   cell

8. tissue
   unit

9. digestive
   digest

10. specific
    skeletal

****

Look at the list of words below. Try to spell a word which relates to your reading. The first one is done for you.

1. calumrsu muscular
2. luacrityrco _____
3. nstyes _____
4. ltelasek _____
5. vronseu _____
6. sgitdieve _____
7. dcorninee _____
8. trspiaryore _____
9. rxtecoyer _____
10. dpretcoierv _____

Match:

_____1. organs

_____2. tissues

_____3. systems

_____4. first building block

_____5. cell

A. Cells of the same type which group together

B. Cell

C. Different types of tissues which group together.

D. The basic unit of life.

E. Special groups of organs working together.

Read each sentence below and indicate whether it is true "T" or false "F".

_____1. There are only four systems in your body.

_____2. There is only one building block in your body.

_____3. The first building block in your body is the circulatory system.

_____4. Organs working together are called systems.

_____5. The six systems in your body depend on the nervous system.

_____6. Cells of the same type group together to form tissues.

_____7. Different types of systems form organs.

_____8. This is the order of the building blocks in your body - cells--tissues--organs -- systems.

_____9. The skeletal system has to do with the muscles in your body.

_____10. A cell is the basic unit of life.

Place proper letter for each blank to correctly spell the word. Rewrite each word you spell wrong. Also give a definition for each word.

1. o__g__n__ _____

_____

2. s__s__e__s _____

_____

3. t__s__u__s _____

Answer the following questions:

1. What are the building blocks in your body?
   (List at least three of them)

   A.

   B.

   C.

2. List at least five of the systems in your body.

   A.
   B.
   C.
   D.
   E.

3. What are the systems made of?

4. What forms organs?

5. What is the basic unit of life?

Look at the lists below. Circle the word that is spelled correctly in each line.

1.	sestems	systems	systams
2.	muscular	muscuelar	musculer
3.	sceletal	skelatal	skeletal
4.	organe	organ	oregan
5.	respiratory	resperatory	resperatore
6.	serculatory	circulatory	circulatore
7.	tissue	tishue	tessue
8.	excreetore	excretory	excretore
9.	nervos	nervous	nerveous
10.	reproductive	reproductiv	reproducktive

Instructions:

In this selection you will read about the skeletal system. You will see what an important function this system serves. You have a vocabulary list of important words found in this article. Study each word carefully before reading the article. If you have any difficulty, please consult with the instructor or tutor.

Instrucciones:

En esta selección vas a leer del sistema esquelétal. Vas a ver que este sistema sirve una función muy importante. Tienes una lista de vocabulario que es importante en este artículo. Estudia cada palabra cuidadosamente antes de leer el artículo. Si tienes dificultad, favor de consultar con el profesor o tutor.

Vocabulary	Vocabulario
organs	órganos
system	sistema
structure	estructura
bones	huesos
rib cage	costillas
lungs	pulmones
muscles	músculo
frame	armazón
skull	cráneo
spine	columna vertebral
limbs	extremidades
protect	proteger
brain	ceso
shape	forma
vertebrates	vertebrados
spinal column	columna vertebral

Keep the following questions in mind as you read the article on the skeletal system.
Recuerda las siguientes preguntas al leer el artículo en el sistema esquelético.

1. What does the skeletal system consist of?
   ¿De qué consiste el sistema esquelético?

2. How many bones are there in the human body?
   ¿Cuántos huesos hay en el cuerpo humano?

3. What general functions do the bones in your body have?
   ¿Cuál función general tienen los huesos del cuerpo humano?

4. What are the three main regions of the human framework?
   ¿Cuáles son las tres regiones escenciales del cuerpo humano?

5. What is the main purpose of the skull?
   ¿Qué es el propósito mas básico del cráneo?

6. What is the main function of the spinal column?
   ¿Cuál es la función básica de la columna vertebral?

7. What are the limbs?
   ¿Qué son las extremidades?

1. From what you have read and studied you know different organs in your body group together to form a system. There are a total of nine different systems. We will discuss the skeletal system in the remaining information sheets.

2. Everyone has a very special shape or figure. It is basic, but has particular characteristics that make you different from anyone else. Your height, weight and shape are determined by the structure of your body. Your skeletal system consists of hard tissues called bones. There are 206 bones in your body that support and provide a framework for your body. They also serve as a protection or shield for vital organs. For example, your rib cage protects your lungs from getting punctured or bruised. A bone also serves as attachment for muscles and lever for movement. You can compare the human framework to that of a car. A car is designed with a particular frame. It is recognized for its uniqueness with a special name. A volkswagon's frame or body is much different than a cadillac's and each can be easily distinguished.

3. Your framework can be divided into three main parts or regions: The skull, the spine and the limbs. The skull is formed by several bones whose primary function is to protect the brain. The skull has a basic shape but it can vary a little with each person. It rotates on the spine. The spine or backbone consists of many irregular shaped bones called vertebrates. The spinal column holds the body and head straight. The last region are the limbs. There are four limbs. The upper two are the arms and the lower are the legs. We will only discuss the skull in detail.

1. Ya sabes que los órganos de tu cuerpo se agrupan para formar un sistema. Hay un total de nueve sistemas distintos. El sistema esquelético se presentará en las lecturas que siguen.

2. Todos tenemos una figura o forma especial distinta. Esta es básica, pero tiene características particulares que nos hacen diferentes. Tu altura, tu pezo y tu figura son determinados por la estructura de tu cuerpo. Tu sistema esquelético consiste de tejidos duros llamados huesos. Hay 206 huesos en tu cuerpo, los cuales te dan soporte y forman el esqueleto de tu cuerpo. Estos también sirven de protección para los órganos vitales. Por exemplo, las costillas protegen a los pulmones contra lesiones. Los huesos también sirven de enlace a los músculos y como una palanca para todos los movimientos corporales. Uno puede comparar al esqueleto humano con el del automóvil. Cada tipo de automóvil tiene una estructura especial. Se reconoce por su estructura única. Un volkswagon es muy diferente a un cadillac y cada uno se puede distinguir muy fácilmente.

3. Tu esqueleto se puede dividir en tres partes o regiones: el cráneo, la columna vertebral y las extremidades. El cráneo es formado por varios huesos. Su función es proteger el cerebro. El cráneo tiene una forma básica, pero esta forma puede varear poquito en cada persona. El cráneo gira el la columna vertebral. La columna vertebral consiste de muchos huesos irregulares que se llaman vertebrados. La columna vertebral sirve para sostener al cuerpo y a la cabeza rectos. La última región son las extremidades. Hay cuatro extremidades. Las superiores son los dos brazos y las de abajo son las piernas. Solamente el cráneo se va a discutir en estas lecturas.

Find The Answers

1. Your skeletal system consists of hard _____called bones.

A. ligaments
B. organs
C. muscles
D. tissues

2. The word in paragraph 2 that means essential is _____.

3. The words "holds the body and head straight" in paragraph 3 refer to the words _____.

4. The story does not say so, but it makes you think that

A. Bones are hard to break because they need to protect your vital organs
B. Bones can be replaced by other bones.
C. A man has more bones than other animals.

5. Your framework can be divided into two main parts.

Yes No Does not say

6. On the whole, this story is about

A. The nine systems
B. Your body's framework
C. Your limbs

7. What is the skull's primary function?

A. To hold the body and head straight.
B. To protect your lungs.
C. To protect the brain.

From what you have read you should be able to fill in the blanks. If you have difficulty go back to your reading.

1. Your height, weight and shape are determined by the _____of your body.

2. Your _____can be divided into three main parts or regions.

3. Your _____protects your lungs from getting punctured.

4. The skull _____on the spine.

5. There are _____limbs.

6. There are _____bones in your body that support and provide a framework for your body.

7. The _____ _____ holds the body and head straight.

8. There are a total of _____different systems.

9. The arms and legs are called _____.

10. The _____consists of many irregular shaped bones.

Fill in the blanks with the word you think belongs without looking back at the original article.

Your _____ can be divided into three main parts or _____:

The skull, the _____ and the _____. The skull is _____

by several bones whose primary _____ is to _____ the

brain. The _____ has a basic _____ but it can vary a little

with each _____. It _____ on the spine. The spine or

_____ consists of many _____ shaped bones called

_____. The spinal _____ holds the body and _____

straight. The last region are the _____. There are _____

limbs. The upper two are the _____ and the lower are the _____.

Match:

_____1. framework	A. Hard tissues
_____2. bones	B. Holds body and head straight
_____3. skull	C. Arms and legs
_____4. limbs	D. Rotates on the spine
_____5. spinal column	E. Skull, spine and limbs

****

Mark T for true and F for false

_____1. Your framework is divided into three main parts or regions.

_____2. Everyone has the same shape.

_____3. Your skull rotates on your rib cage.

_____4. The skull protects your brain.

_____5. The 206 bones in your body support and provide a framework for your body.

_____6. Your spinal column consists of vertebrae.

_____7. Skulls have the same basic shape.

_____8. Different organs in your body group together to form tissues.

_____9. The structure of your body is different from anyone else.

_____10. The last region in your framework are the limbs.

Answer the following questions:

1. What are the main parts of your framework?

2. What determines your height, weight, and shape?

3. What is the function of your skull?

4. What does the backbone consist of?

5. What protects your lungs?

Instructions:

In the following information sheet you will read about the structure of a bone. You will also read about the four types of bones. Read the vocabulary list that is provided for you.

Instrucciones:

En la siguiente página de información vas a leer acerca la estructura básica de un hueso. También vas a leer acerca de los cuatro tipos de huesos. Lee la lista de vocabulario para que facilite tu trabajo.

Vocabulary	Vocabulario
vital	vital
periosteum	periostio
compact bone tissue	tejido compacto
cancellous bone tissue	tejido cancelado
marrow	teútano
cartilage	cartílago
blood vessels	vaso capilares
connective tissue	tejido conectivo
joint	coyuntura
ligament	ligamento
gliding joint	coyuntura deslizante
movable joint	coyuntura movible
organic	orgánico
inorganic	inorgánico

Keep this information in mind while you are reading this article.
Recuerda esta información al leer este artículo.

1. There are four basic types of bones: long, short, flat, and irregular.
   Hay cuatro tipos básicos de huesos: largos, cortos, planos, e iregulares.

2. The function of bones is to give strength and shape to the body, support and protect vital organs.
   La función de los huesos es dar fuerza y forma al cuerpo, apoya, y proteger órganos vitales.

3. The basic structure of a bone includes the periosteum, compact tissue, cancellous tissue, marrow and cartilage.
   La estructura básica de un hueso incluye el periostio, tejido compacto, tejido cancelado, teútano y cartílago.

4. Bones are connected by joints.
   Los huesos se juntan con coyuntaras.

5. A ligament is a sheet or band of tissues that hold joints together to allow movement like the wrist and the ankle.

   Un ligamento es una faja de tejido fibroso que ayuda a sostener los huesos en las coyuntaras tal como ocurre en la muñeca o el tobillo.

Types and the Structure of a Bone

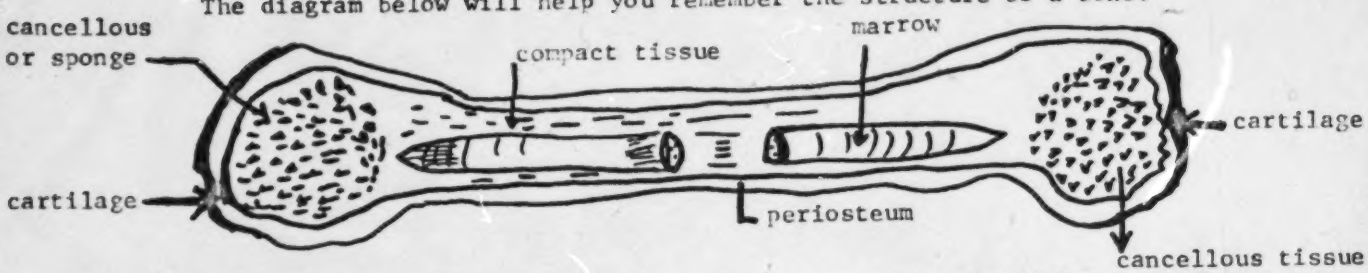
1. We have mentioned that the human skeletal system is composed of 206 bones. These bones serve as a support and also as a protection of vital organs. Bones also give strength and support to the body. There are different types of bones which make up the skeletal system. There are four types of bones: long bones, short bones, flat bones, and irregular bones. A bone is composed of about one third organic matter with bone cells, blood vessels, marrow and tissues and two thirds inorganic matter or minerals.

2. While there are different types of bones, they all have the same structure. The outer layer of the bone is called the periosteum. It is made of connective tissues which allow the blood vessels to actually pass into the bone itself. The next layer is the compact bone tissue. It is the hard tissues of the bone. It is given the name compact because the tissues are so tightly packed together. At each end of a long bone is found a sponge-like tissue called the cancellous bone tissue. It is found at the end of the bone to soften contact between bones.

3. The marrow of the bone is found in the center of the bone. It is yellow in color. Marrow is also found at the end of a long bone and it is red in color. Marrow is soft tissue and this is where red blood cells are manufactured. Red blood cells carry oxygen and give the pigment or color to the blood.

4. Cartilage is found on the end of bones. Your nose is made of cartilage. Cartilage is not as hard as a bone because it lacks minerals. Cartilage serves as a cushion for joints and prevents jarring between bones that are in motion. A new born baby's bones are mostly cartilage. Later they are hardened as the baby grows. This is the reason why babies' bones are not as easy to break as a mature adult or an old person.

The diagram below will help you remember the structure of a bone.



5. Bones are connected to each other. The place where bones join together are called joints. A fixed joint is one that does not move. A movable joint is one that can move. A movable joint can be shaped like a ball or socket such as one found in the hips or shoulder. A pivot is also a movable joint found in the neck and forearm. A gliding movable joint is found in the wrist and ankle and a hinge joint is a movable joint that is found in the elbow and knee to allow back and forth movement. All joints are held or supported by sheets or bands or tissues called ligaments.

1. Ya hemos mencionado que el sistema esquelético humano tiene 206 huesos. Estos huesos sirven para sostener y de protección para los órganos vitales. Los huesos también le dan fuerza y soporte al cuerpo. Hay diferentes tipos de huesos que componen al sistema esquelético. Hay cuatro tipos de huesos: huesos largos, huesos cortos, huesos planos y huesos irregulares. Un hueso está compuesto de un tercio de materia orgánica con células de hueso, vasos sanguíneos, teútano y tejidos. Dos tercios del hueso son materia inorgánica o minerales.

2. Mientras hay diferentes tipos de huesos, todos tienen la misma estructura. El membrano exterior del hueso se llama periosteo. Este está compuesto de tejidos conjuntivos que permiten a los vasos sanguíneos que penetren al hueso. Mas adentro está el tejido de hueso más compacto. Es el tejido duro del hueso. Se le da el nombre compacto porque los tejidos están unidos muy firmemente. A las orillas de cada hueso se halla el tejido parecido a esponja que se llama tejido cancelado. Este se halla a las orillas del hueso para servir de cojinetes entre los huesos.

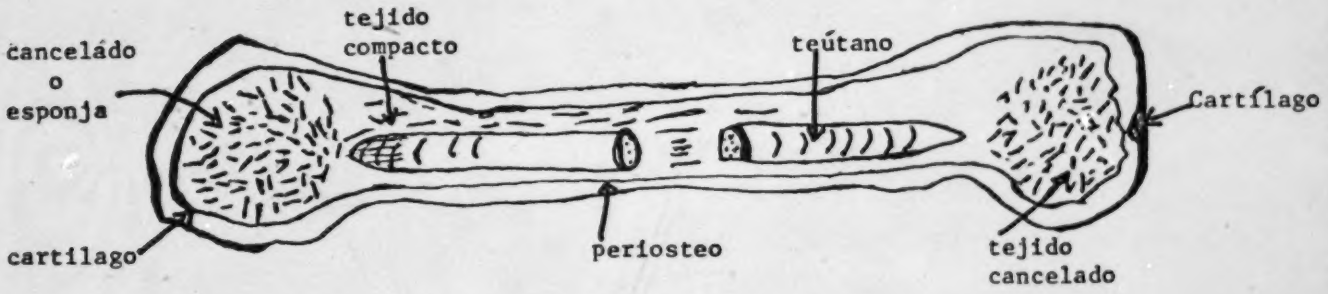
3. El teútano del hueso se halla en el centro del hueso. Este es de color amarillo. Parte del teútano también se halla a las orillas de los huesos largos y es de color rojo. El teútano es un tejido blando y aquí se hacen las células rojas sanguíneas. Células rojas sanguíneas tienen oxígeno y estas dan el pigmento o color a la sangre.

4. El cartílago se halla a las orillas de los huesos. Tu nariz es hecho de cartílago. Cartílago no es tan duro como el hueso porque no contiene minerales. El cartílago sirve de cojinete a los huesos en las coyunturas y impide que los huesos trepiden unos con otros al moverse. Los huesos de un bebé son casi completamente cartílago. Estos se endurecen con los años.

20A

Por eso es mas difícil para un bebé que se quiebre los huesos que para un adulto.

El dibujo siguiente te ayudará recordar la estructura del hueso.



5. Los huesos están conectados uno al otro. El lugar donde se unen los huesos se llama coyuntura. Una coyuntura fija es una que no se mueve. Una coyuntura movible se puede mover. Una coyuntura movible puede tener la forma de una bola o una cuenca como la que se halla en la cadera o en los hombros. Un pivote también es una coyuntura movible que se encuentra en el cuello y el antebrazo. Una coyuntura deslizante se halla en la muneca y en el tobillo. Una coyuntura ginglimo angular es una coyuntura movible que se halla en el codo y en la rodilla para permitir movimiento. Todas las coyunturas se detienen con ligamentos.

Find The Answers

1. A bone is composed of

   A. Organic matter only
   B. Inorganic matter only
   C. Both organic and inorganic matter
   D. Hard layers of marrow

2. The word in paragraph 2 which means group of cells is _____.

3. The words "and give pigment or color" in paragraph 3 refer to _____

   _____.

4. The story does not say so, but it makes you think that

   A. As you grow older cartilage in your bones increases.
   B. As you grow older cartilage in your bones decreases.
   C. Marrow also gives pigment to the blood.

5. Red blood cells are different from white corpuscles.

   Yes No Does not say

6. On the whole, this story is about

   A. Movement of bones
   B. Types and structure of bones
   C. Cartilage found in babies' bones

7. Bones serve our body for

   A. Structure, protection, and support.
   B. Growing rapidly
   C. Pigment of our hair and eyes

Match:

_____1. Outer layer of bone.	A. skeletal
_____2. This system is composed of 206 bones.	B. compact
_____3. Tightly packed tissues.	C. cancellous
_____4. Sponge-like tissue found at each end of a long bone.	D. marrow
_____5. Soft tissue where red blood cells are manufactured.	E. periosteum

****

Circle the correct answer.

1. Bone marrow produces pigment.

   Yes No Does not say.

2. Cartilage is the strongest type of bone in your body.

   Yes No Does not say

3. Oxygen carries blood cells through your system.

   Yes No Does not say

4. There are four types of bones in our skeletal system.

   Yes No Does not say

5. Compact tissue is a soft tissue.

   Yes No Does not say

Fill in the spaces with the correct word(s).

1. The _____of the bone is found in the center of the bone.

2. _____ _____ _____ carry oxygen and give the pigment or color to the blood.

3. A new born baby's bones are mostly _____.

4. _____bone tissue is the hard tissue of the bone.

5. The outer layer of the bone is called _____.

6. There are different types of bones but they all have the same _____.

7. _____ _____ allow the blood vessels to pass into the bone itself.

8. _____is yellow in color.

9. A bone is composed of about _____organic matter.

10. Your nose is made of _____.

4.3

Complete each word by adding the letter of each blank space.
Write a definition for each word.

1. m__rr__ __ _____

_____

2. ca__ti__ag__ _____

_____

3. __ er__os__eu__ _____

_____

4. c__ __pa__t _____

_____

5. c__n__e__t__ve _____

_____

6. ske__eta__ _____

_____

7. mi__e__al__ _____

_____

8. ca__c__l__ou__ _____

_____

9. o__y__en _____

_____

10. p__g__e__t _____

_____

Answer the questions.

1. What is the sponge-like tissue called and where is it found?

2. Why is cartilage softer than bones?

3. What is the periosteum?

4. What does cartilage do?

5. What is the hard tissue of the bone?

Instructions:

In this reading information sheet you will read about the cranium. The cranium has six important bones. The vocabulary list will help you remember the information.

Instrucciones:

En esta página de información vas a leer acerca del cráneo. El cráneo tiene seis huesos importantes. La lista del vocabulario te ayudará a recordar la información importante que se encuentra en ésta pagina de información.

Vocabulary	Vocabulario
osteologist	osteologista
osteology	osteología
cranium	cráneo
face	cara
frontal	frontal
parietal	parietal
ethmoid	etmoides
nasal cavities	cavidades nasales
sphenoid	esfenoides

Keep these questions in mind while you are reading this information sheet.
Recuerda las siguientes preguntas al leer esta página de información.

1. What is meant by osteology?
   ¿Qué queremos decir con osteología?

2. How many bones does the cranium consist of?
   ¿Cuántos huesos contiene el cráneo?

3. How many bones does the face consist of?
   ¿Cuántos huesos contiene la cara?

4. Where is the frontal bone located in the cranium?
   ¿Dónde se encuentra el hueso frontal en el cráneo?

5. What bone forms the nasal cavities?
   ¿Qué hueso forma las cavidades nasales?

6. Why is the sphenoid bone important?
   ¿Porqué es importante el hueso esfenoides?

7. What are the eight bones that make up the cranium?
   ¿Cuales son los ocho huesos que forman el craneo?

Eight Bones Of The Cranium

1. You know from what you have read that your skeletal system is composed of bones. You also have seen the four major types of bones and read about the basic structure of bones. A person who studies bones is called an osteologist. The actual study of bones is called osteology. As you recall, the human body is divided into three regions. The skull is one of the regions. The skull is divided into two parts: The cranium, consisting of eight bones and the face consisting of fourteen bones. It is important for a person who works with hair to also understand the skeletal system and its functions in order to give the customer a thorough massage and facial.

2. As we stated before, the skull is divided into two parts, the cranium and the face. We will first discuss the cranium and the eight bones which it is composed of.

3. The top bone or part of the cranium is called the frontal part. This part includes the forehead, the roof of the eye sockets and the depressions of the nose.

4. The parietal bone of the cranium forms the crown or top of the skull or head. The parietal region is composed of two bones.

5. The ethmoid bone is light and sponge-like in nature. It forms part of the nasal cavaties. (See figure A)

6. Another bone of the cranium is the sphenoid bone. This bone is located at the base of the cranium. It is important because it joins together all the bones of the cranium. (See figure B)

7. The occiptial bone is situated at the lower part of the cranium. (See figure B) The two temporal bones are situated on either side of the skull in the ear region.

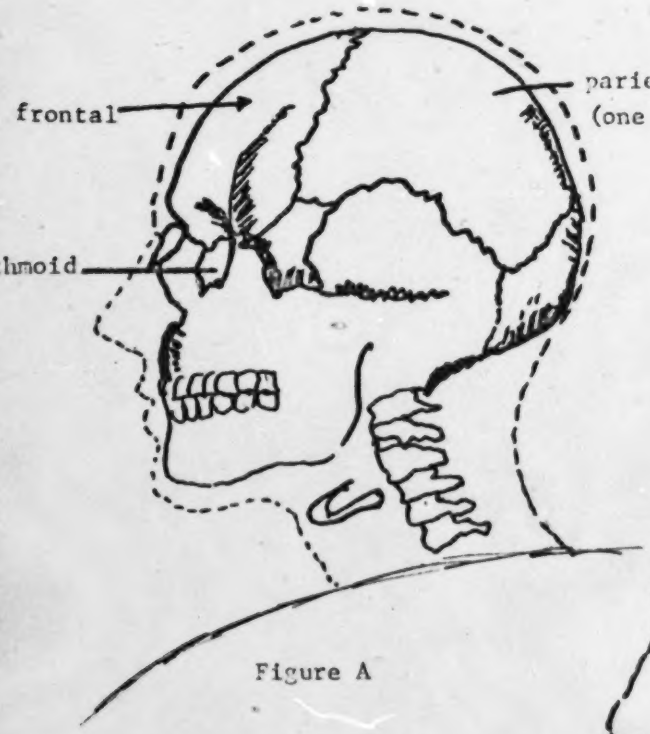


Figure A

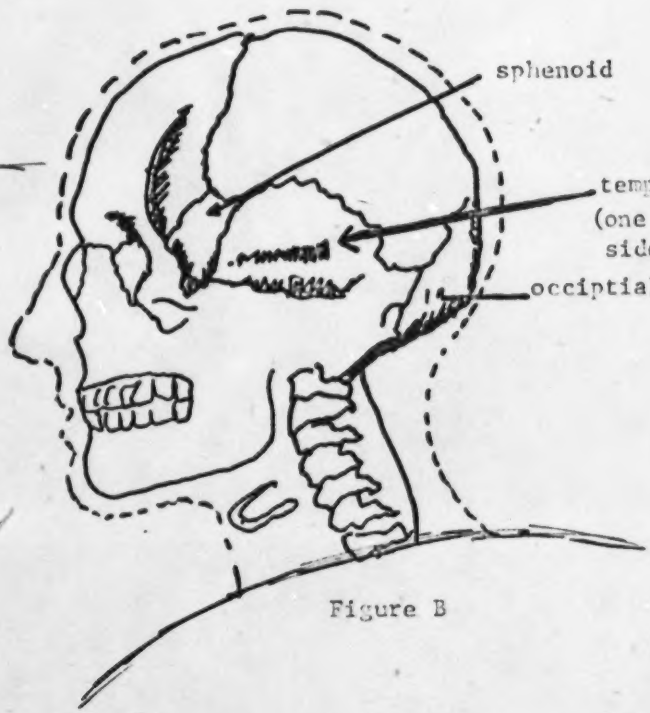


Figure B

Los Ocho Huesos del Cráneo

1. Ya sabes que el sistema esquelético es compuesto de huesos. Ya has visto los cuatro tipos mayores de huesos y has leído de la estructura básica de los huesos. Una persona que se dedica a la estudia de huesos se llama osteólogo. El estudio de huesos es osteología. Como recuerdas, el cuerpo humano está dividido en tres regiones. El cráneo es una de las regiones. El cráneo está dividido en dos partes: los huesos craneanos cuales consisten de ocho huesos y los huesos faciales que consisten de catorce huesos. Es importante que la persona que trabaja con el pelo también comprenda el sistema esquelético y sus funciones para que pueda darle a su cliente un masaje y facial.
2. Como hemos dicho, el cráneo está dividido en dos partes, el cráneo y el facial. Discutiremos primero el cráneo y los ocho huesos cuales lo forman.
3. El hueso superior se llama frontal. Este incluye la frente, la parte superior de las cuencas de los ojos y las compresiones de la nariz.
4. Los huesos parietales del cráneo forman la coronilla o la parte superior del cráneo o de la cabeza. La región parietal está compuesta de dos huesos.
5. El hueso etmoides es liviano y como esponja. Este forma parte de las cavidades nasales. (Mira figura A)

6. Otro hueso del cráneo es el hueso <u>esfenoides</u>. Este hueso está al base del cráneo. Es importante porque este une a todos los huesos del cráneo. (Mira figura B)

7. El hueso occipital está en la parte inferior del cráneo. (Mira figura B) Los dos huesos temporales están en los dos lados del cráneo en la región del oído.

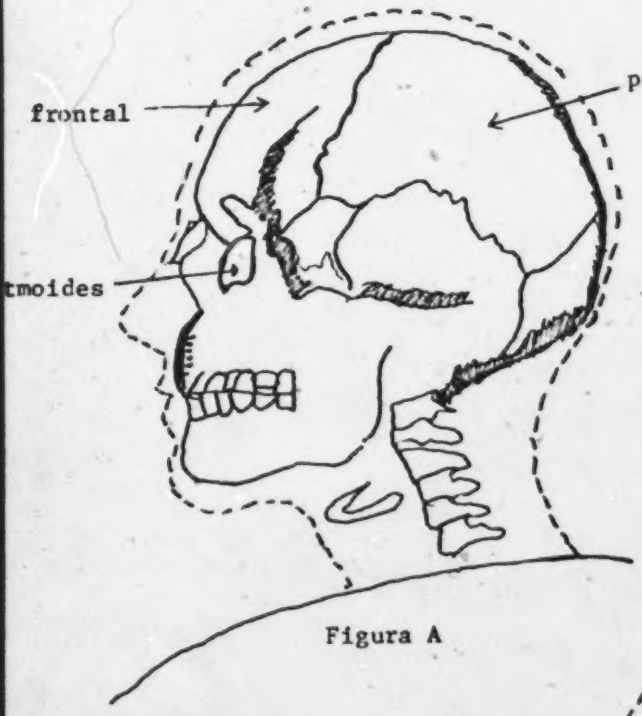


Figura A

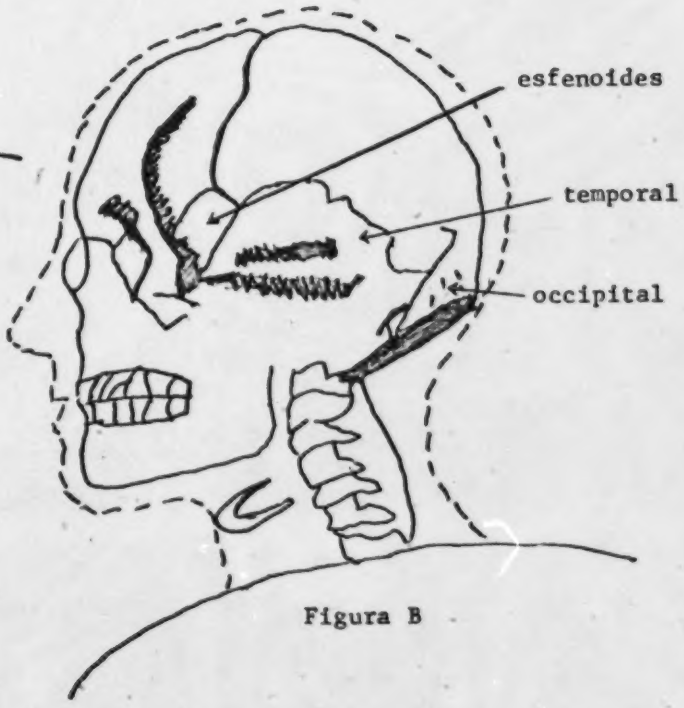


Figura B

Find The Answers

1. The person who studies bones is called an

   A. osteology
   B. doctor
   C. histologist
   D. osteologist

2. The word in paragraph 1 that means the study of bones is called _____.

3. The words " the cranium and face" refer to the word _____.

4. The story does not say so, but it makes you think that

   A. The skeletal system has few bones.
   B. The skull is a very complex region of the skeletal system.
   C. Facials and massages Are not important.

5. The skull is divided into two parts, the cranium and forehead.

   Yes No Does not say

6. On the whole this story is about

   A. The cranium
   B. Osteology
   C. Massage and facials

7. Why is it important for a person who work with hair to learn about the skeletal system?

   A. A person needs to know the skeletal system in order to give a thorough massage.
   B. A person needs to know which bones are soft or hard.
   C. The skull is very sensitive.

Look at the list of words below. If the word is spelled correctly circle the "R." If the word is misspelled circle the "W" and spell the word correctly.

R	W	craneum	_____
R	W	occiptial	_____
R	W	osteologist	_____
R	W	frontel	_____
R	W	skul	_____
R	W	ethmoid	_____
R	W	sphynoid	_____
R	W	parietal	_____
R	W	temperal	_____
R	W	skeletal	_____

Fill in the blank(s) to complete each sentence.

You know from what you have read that your _____system is composed of _____. A person who studies bones is called an _____. The actual _____of bones is called _____. As you recall the _____body is divided into three _____. The _____ is one of the regions. The skull is divided into _____parts: The _____consisting of eight bones and the _____consisting of _____bones. It is important for a person who works with _____to also understand the _____system and its function in order to give the customer a thorough _____ and _____.

Fill in the diagram with the list provided.

frontal _____1.

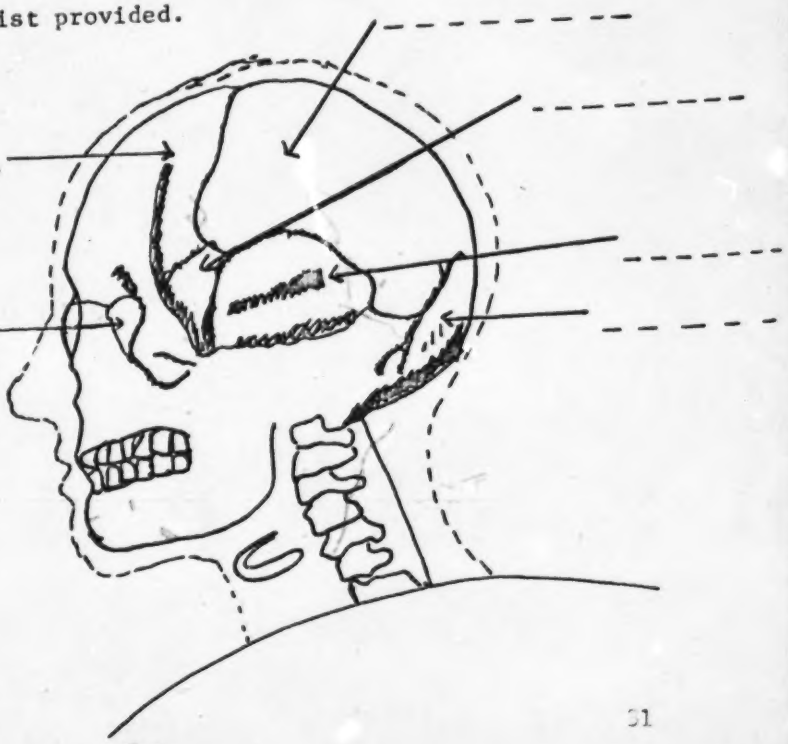
parietal _____2.

ethmoid _____3.

sphenoid _____4.

temporal _____5.

occiptial _____6.



Answer The Questions.

1. What is meant by osteology?

2. What is the top bone of the cranium called, and what parts does it include?

3. What is formed by the parietal bone?

4. Which bone forms the nasal cavities?

5. Why is the sphenoid bone important?

Instructions:

You will read about the important bones that make up the face. It is important to know this information because some of these bones are affected by massage. Check the vocabulary list for important words in this information sheet.

Instrucciones:

Vas a leer acerca de los catorce huesos importantes que contiene la cara. Es importante saber esta informacion porque algunos de los huesos de la cara estan directamente afectados con el masaje.

Vocabulary	Vocabulario
turbinal bones	huesos turbinados
nasal bones	huesos nasales
vomer bone	hueso vómer
lacrimal bones	huesos lagrimales
palatine bones	huesos palatinos
maxillae	huesos maxilares
mandible	hueso de mandíbula
zygomatic bones	huesos cigomáticos

Keep the following questions in mind while you are reading the information sheet.
Recuerda las siguientes preguntas al leer esta pagina de informacion.

1. What are the three bones that make up part of your nose?
   ¿Cuáles son los tres huesos que forman parte de tu nariz?

2. Why are the lacrimal bones important?
   ¿Por qué son importantes los huesos lagrimales?

3. Which bone forms your lower jaw?
   ¿Cuál hueso forma la quijada inferior?

4. What bones form the palate of your mouth?
   ¿Cuáles huesos forman el paladar de tu voca?

5. Which are the bones of the face that are affected by the massage?
   ¿Cuáles son los huesos de la cara que son afectados por el masaje?

6. What bones make up the upper jaw?
   ¿Cuáles huesos forman la quijada superior?

7. What are the fourteen bones of the face?
   ¿Cuáles son los catorce huesos importantes de la cara?

The Fourteen Bones of the Face 4.5

1. From what you have read you know that the skull is divided into two regions, the cranium and the face. In this reading you will read about the fourteen important bones that make up the face.

2. There are three types of bones that make up parts of your nose. The first are the nasal bones. They consist of two oblong bones that form the bridge of the nose located in the middle part of the face. The second type of bone that make up part of the nose are the two turbinal bones. They are situated on either side of the nasal depressions. The vomer bone forms part of the dividing wall of the nose.

3. There are two bones which are directly involved in the producing of tears. These two bones are the smallest and most fragile. They make up part of the tear ducts. They are called lacrimal bones.

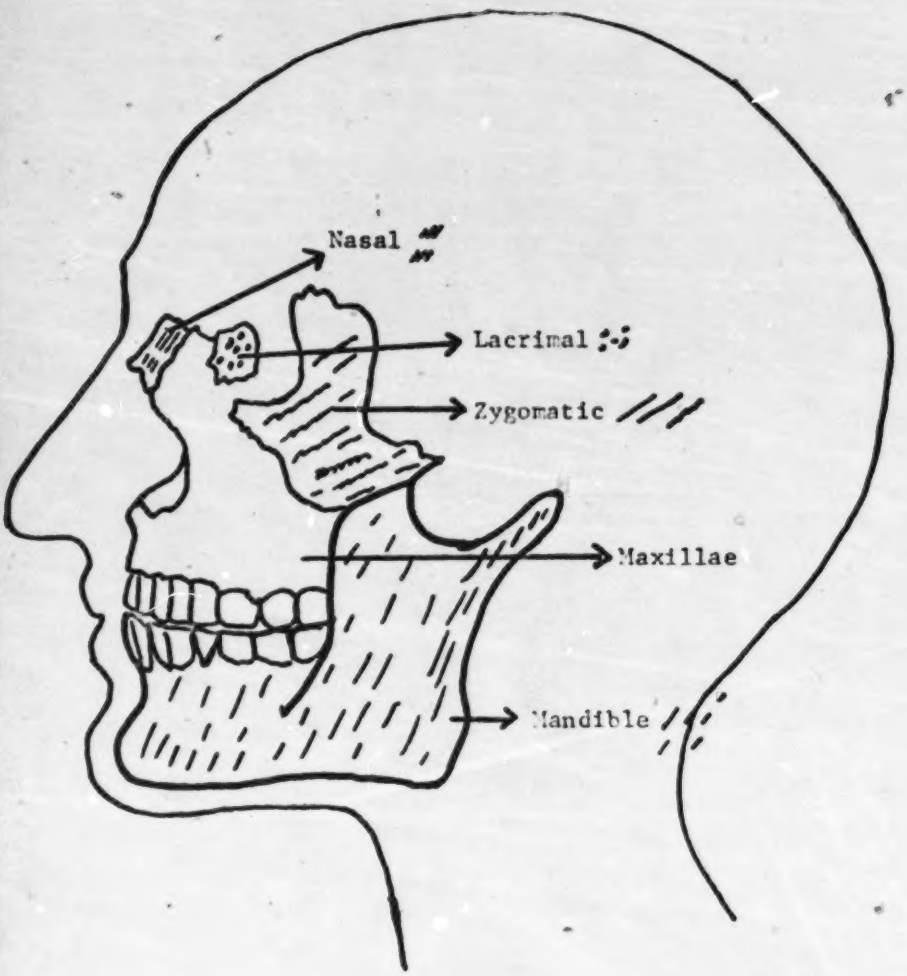
4. The two bones that form the palate or roof of the mouth and also form the floor of the nose are called the palatine bones.

5. The two large bones of the face called the maxillae form the upper part of the jaw. They are also known as upper jawbones.

6. The largest and the strongest of the face bones is called the mandible. It is also called the lower jawbone containing the lower teeth.

7. The two bones that form the upper part of the face or the prominence of the cheeks are called the zygomatic bones.

8. The only face bones affected by massage are the nasal, zygomatic, maxillae, and the mandible.



Facial Bones

Two Nasals

Two turbinals

Voner

Two lacrimals

Two zygomatics

Two palatines (palate)

Two maxillae (upper jaw)

Mandible (lower jaw)

Los Catorce Huesos de la Cara

1. Ya sabes que el cráneo está dividido en dos regiones, el cráneo y el facial. En esta selección vas a leer de los catorce huesos que forman la cara.

2. Hay tres tipos de huesos que forman tu nariz. Los primeros son los dos nasales. Estos consisten de dos huesos que forman el caballete de la nariz localizados en el medio de la cara. El segundo tipo de huesos cuales forman la nariz son los dos turbinados. Estos están situados en los dos lados de las compresiones nasales. El vómer forma parte de la pared nasal.

3. Hay dos huesos cuales ayudan en la producción de lágrimas. Estos dos huesos son los mas chicos y los mas frágiles. Estos componen parte de los sacos lacrimales. Se llaman huesos lagrimales.

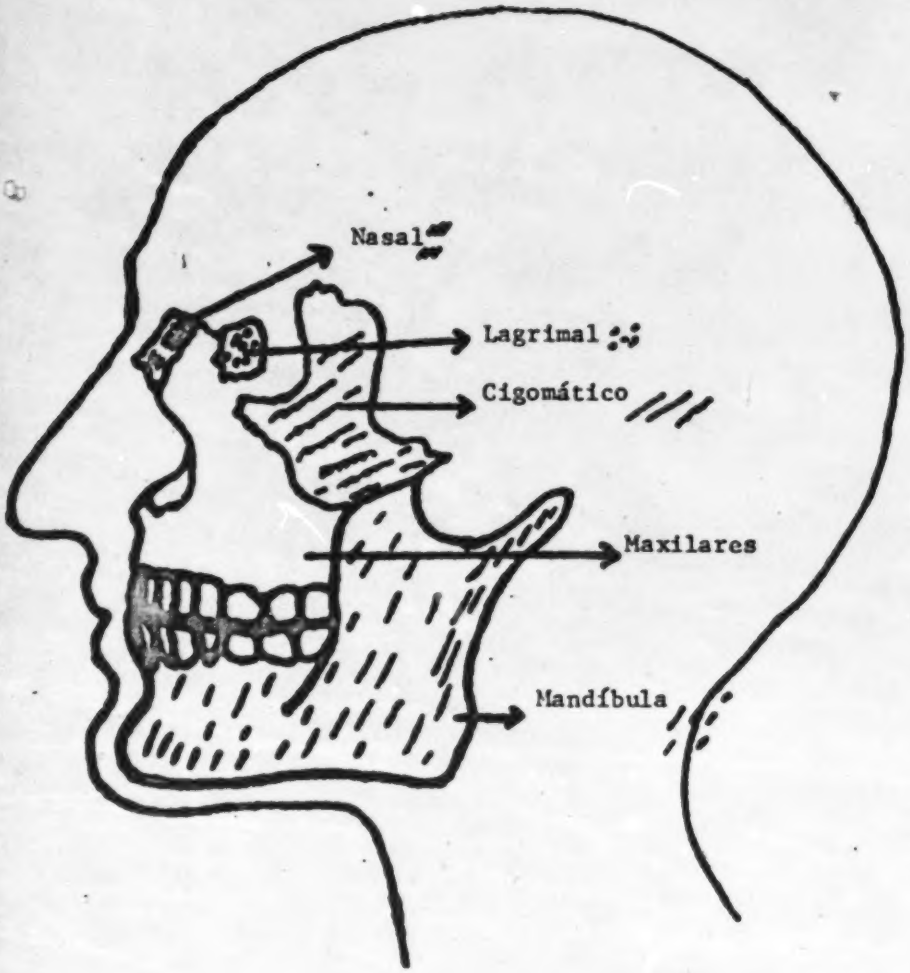
4. Los huesos que forman el paladar de la boca y también la base de la nariz se llaman huesos palatinos.

5. Los dos huesos grandes de la cara llamados maxilares forman la quijada superior. Estos también se conocen como huesos de la quijada superior.

6. El más grande y fuerte de los huesos de la cara se llama mandíbula. También se conoce como hueso de la quijada inferior que contiene los dientes inferiores.

7. Los dos huesos que forman la parte superior de la cara se llaman cigomáticos.

8. El único hueso facial afectado en masaje son el nasal, el cigomático, el maxilar, y el mandíbula.



Huesos Faciales

Dos nasales

Dos turbinados

Vómer

Dos lagrimales

Dos cigomáticos

Dos paladinos (paladar)

Dos maxilares (huesos de la quijada superior)

Mandíbula (quijada inferior)

Find The Answers

1. The face is made up of

   A. fourteen bones
   B. twelve
   C. six bones
   D. fifteen bones

2. The word in paragraph five that means jawbones is _____.

3. The words in paragraph 2 "they consist of two oblong bones" refer to the words

   _____.

4. The story does not say so, but it makes you think that

   A. The lower jaw bones need to be sharp because they are involved in chewing.
   B. The palatine bones are hard bones.
   C. The nasal bone cannot be broken.

5. The only face bones affected by massage are the nasal, zygomatic, maxillae and turbinal.

   Yes No Does not say

6. On the whole this story is about

   A. Facial features
   B. The cranium
   C. Bones that make up the face

7. What bones make up the cheeks?

   A. zygomatic bones
   B. lacrimal bones
   C. turbinal bones

Mark T for true and F for false. 4.5

_____1. The vomer bone is part of the lower jaw.

_____2. The most fragile bones are the lacrimal bones.

_____3. The bones which form the prominence of the cheeks are the zygomatic bones.

_____4. The lacrimal bones are the largest and strongest of the face bones.

_____5. The upper jawbones are called the maxillae.

_____6. The turbinal bones are found in the zygomatic area.

_____7. The face bones affected by massage are the nasal, zygomatic, maxillae, and the mandible.

_____8. The maxillae form the upper part of the jaw.

_____9. The nasal bone forms the mandible.

_____10. The palatine bones form the floor of the nose.

Unscramble the following words:

1. nbowjae _____

2. cmillaar _____

3. ciamtogzy _____

4. dmblnaei _____

5. xiaellam _____

6. brnatuli _____

7. asnal _____

8. mvero _____

9. mcnirau _____

10. altpaien _____

Select the correct term from the following list and place it next to the statement in parenthesis.

turbinal	lacrimal	mandible
zygomatic	maxillae	jawbone
vomer	palatine	nasal
	skull	

1. The largest and strongest of the face bones is called the (_____).

2. The bones that make up part of the tear ducts are called (_____) bones.

3. The large bones known as upper jawbones are the (_____).

4. The bones situated on either side of the nasal depressions are called the (_____) bones.

5. The two bones that form the upper part of the face are called the (_____) bones.

6. Two oblong bones which form the bridge of the nose are the (_____) bones.

7. The (_____) bone forms part of the dividing wall of the nose.

8. The two bones that form the roof of the mouth and the floor of the nose are called (_____) bones.

9. The lower (_____) contains the lower teeth.

10. The (_____) is divided into two regions.

Circle the words which are plural. 4.5

1. bones
2. floor
3. parts
4. cheeks
5. jaw
6. teeth
7. regions
8. face
9. nose
10. depressions
11. jawbone
12. palate
13. tears
14. mouth
15. ducts

Answer the questions.

1. What bones are affected by massage?

2. How many types of bones make up parts of your nose, and what are they?

3. What are the lacrimal bones?

4. What is the largest and strongest of the face bones?

5. What is formed by the zygomatic bones?

POST TEST FOR SYSTEMS

1. What is meant by osteology?

2. What are the eight bones that make up the cranium?

3. What are organs formed of?

4. What is the function of bones?

5. What are the three bones that make up part of your nose?

6. How many systems are there in the human body?

7. What does the skeletal system consist of?

8. Which are the bones of the face that are affected by the massage?

9. How many bones are there in the human body?

10. What are the four basic types of bones?

Vocabulary	Vocabulario
brains	sesos
cancellous	poroso
cartilage	cartílago
cavity	cavidad
circulation	circulatorio
compact	compacto
consist	consistir
cranium	cráneo
determine	determinar
digestive	digestivo
endocrine	endocrino
ethmoid	etmóides
excretory	excretorio
face	cara
frame	forma armazón
frontal	frontal
inorganic	inorgánico
joint	coyuntura
lacrimal	lacrimal
lever	nivelador
ligament	ligamento
lung	pulmón
mandible	mandíbula
marrow	tuétano
massage	masaje
maxillary	maxilar
muscular	muscular

Vocabulary	Vocabulario
nasal	nasal
nervous	nervioso
organic	orgánico
osteology	osteología
palate	paladar
parietal	parietal
periosteum	periostio
protect	protejer
puncture	agujerear
region	región
reproductive	reproductivo
respiratory	respiratorio
rib	costilla
situate	situar
skeletal	esqueleto
skull	cráneo
sphenoid	esfenoidal
spine	espinazo
strength	fuerza
structure	estructura
support	sostén
system	sistema
tissue	tejido
vertebrate	vertebrado
vessel	vasija
vital	vital
zygomatic	cigomático